

USC Dornsife  
College of Letters,  
Arts and Sciences

**HBIO 350 – Nutrition and Homeostasis (4 units)  
Spring 2016**

**Lectures-Discussions:** Monday/Wednesday;  
10:00am-11:50 am      **Location:** SOS B47

**Instructor:** Gioia Polidori Francisco, PhD  
**Office:** AHF 253  
**Office Hours:** Wednesday 2:00 pm-4:00 pm  
Thursday 2:00 pm-4:00 pm

**Contact Info**

**email:** [gpolidor@usc.edu](mailto:gpolidor@usc.edu)  
**telephone:** 213.740.3337

**Course Description**

Theories and principles of regulation of vitamin/mineral metabolism as it relates to homeostasis of organ systems as well as the effects of acute and chronic exercise. *Prerequisite:* HBIO 302L

**Learning Objectives**

- To develop a deeper understanding of the role of micronutrients in determining homeostasis of organ systems with a cross-disciplinary approach that includes aspects of human nutrition, anatomy, physiology and pathology.
- To develop the ability to think critically, analyze, synthesize, and use information to solve problems, case studies and develop student-driven projects that solidify their understanding of the scientific method, and basic scientific principle.
- To place biological, nutritional and physiological knowledge into an applicable and ethical context, especially how biology, physiology and nutrition can contribute to the resolution of ethical, social and environmental issues.
- To provide sufficient depth of knowledge and skill for entry-level employment in a wide variety of fields or for graduate study in the health professions or other biology-related disciplines.

**Prerequisite(s):** HBIO 302L

### **I. Required Readings**

- **The Science of Nutrition.** 3<sup>rd</sup> edition, Thompson, J.L., Manore, M.M., Vaughan L.A., Pearson Benjamin Cummings, San Francisco, CA, 2010.
- **The Vitamins, fundamental aspects in Nutrition and Helath.** 4<sup>th</sup> Edition, Gerald F. Combs Jr., Academic Press, Elsevier. 2012  
This book is available for free online at the USC library website:  
<http://www.sciencedirect.com.libproxy1.usc.edu/science/book/9780123819802>

### **II. Description and Assessment of Assignments**

- Class material will be evaluated via quizzes and exams.
- Material covered in discussion sessions will be evaluated via individual and group presentations, discussions and via classroom exams.
- **Active Learning** exercises will investigate the vitamin content in diets, meals and snacks.
- **Discussions** will evaluate research findings presented in relevant research paper related to that week's lectures. Students will receive credit for their contribution to the discussion.
- **Debates** will focus on topics under discussion (i.e. use of supplements or choice of frozen food). Students will explain and defend their position.
- **Quizzes** will be given during lectures and will be based on the material discussed.

### **III. Grading Breakdown**

<b>Assignment</b>	<b>% of Grade</b>
Midterm 1	25
Midterm 2	25
Final Exam	30
Discussions/Debates	15
Quizzes	5
<b>TOTAL</b>	100
JEP (Extra Credit)	2.5

### **IV. Grading Scale**

•The grading scale is based on the traditional scale as follows:

	<b>A (≥93%)</b>	<b>A- (≥90%)</b>
<b>B+ (≥87%)</b>	<b>B (≥83%)</b>	<b>B- (≥80%)</b>
<b>C+ (≥77%)</b>	<b>C (≥73%)</b>	<b>C- (≥70%)</b>
<b>D+ (≥67%)</b>	<b>D (≥63%)</b>	<b>D- (≥60%)</b>
<b>F (≤59.9%)</b>		

### **V. Additional Policies**

- A midterm exam can be taken after the specified date **ONLY** if the student has a **documented** medical excuse.
- A request to take a make-up exam must be accompanied by evidence of necessity (ie: letter from a doctor, plane ticket to a game from an athlete) and must be made before the date of the scheduled exam. Make-up exams will be different from the scheduled exam and may be proctored by personnel who do not have extensive knowledge in the area being tested.
- Exams and presentations will not be given a letter grade. Only the final grade will be given a letter grade.
- Lecture slides will be posted on blackboard, however, please do not rely entirely on slides, these are meant as a starting point for note-taking. Class notes and textbook information will form the basis of the material that will be on the exams. If you attend class regularly, you will be updated on the status of lecture notes and course material/announcements.
- Up to 2 lectures/quizzes can be excused without the need for a written excuse letter, however, a request to be excused from taking a lecture quiz must be made before the lecture.
- Late Work Policy: No late work will be accepted unless the student receives written prior approval from the course instructor. Students should contact the course instructor via email with a request for late work.
- Please be informed that you are expected to turn off all electronic communication devices (mobile phone, tablet or laptop) or disable them (and remove earphones) during class time except when submitting quizzes. Using a laptop in class to take notes is permitted
- The only extra credit offered for this course is JEP. JEP is the oldest and largest university service-learning program in the country. It offers students the unique opportunity to combine academic coursework with experiences in the community surrounding the campus. At the beginning of the semester, a JEP representative will visit our class and tell you more about the opportunities available that semester. To register for JEP, visit <http://dornsife.usc.edu/joint-educational-project/>.

## VI. Tentative Lecture Schedule

Date	Lecture Topic	Thompson (Chapters)	Discussion
Jan 11	What is a Micronutrient?	7.5	Introduction
Jan 13	Metabolism Review	7	
Jan 18	<b><i>Martin Luther King's Birthday</i></b>		Discussion I
Jan 20	Thiamine	8	
Jan 25	<b>Metabolism</b>	Riboflavin and Niacin	Discussion II
Jan 27		Biotin, Pantothenic Acid & Cobalamine	
Feb 1		Pyridoxine	
Feb 3		Folate	
Feb 8	<b>MIDTERM I</b>		Active Learning I
Feb 10	<b>Electrolytes I</b>	Sodium & Potassium	
Feb 15	<b><i>Presidents' day</i></b>		Discussion III
Feb 17	<b>Electrolytes II</b>	Calcium, Chloride & Phosphorus	
Feb 22	<b>Antioxidants</b>	Antioxidants & Chronic Diseases	Discussion IV
Feb 24		Vitamin A, C & E	
Mar 29		Selenium & Other Minerals	
Mar 2	<b>Bone Homeostasis</b>	Vitamin D	Discussion V
Mar 7		Calcium	Midterm Review
Mar 9		Phosphorus & Magnesium	
Mar 14	<b><i>Spring Recess</i></b>		--
Mar 16	<b><i>Spring Recess</i></b>		
Mar 21	<b>MIDTERM II</b>		Active Learning II
Mar 23	Iodine, Selenium and Thyroid Hormones		
Mar 28	<b>Immunity &amp; Blood Homeostasis</b>	Overview	Discussion VI
Mar 30		Micronutrients & RBC production	
Apr 4		Iron & Anemia	
Apr 6		Zinc & Vitamin C	
Apr 11		Copper, Selenium and Vitamins A & E	
Apr 13		Vit K and the clotting cascade	
Apr 18	Ultra-trace Minerals and Quasi-Vitamins		Final Debate I
Apr 20	Micronutrients in Early Development		
Apr 25	Changes in Micronutrients in Aging		Final Debate II
Apr 27	Review		
Apr 30- May 3	<b><i>Study Days</i></b>		
TBC	<b>Final Exam</b>		

## **VI. Support Systems**

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* [http://sait.usc.edu/academicsupport/centerprograms/dsp/home\\_index.html](http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html) provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu/> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.

## **VII. Academic Conduct**

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards* <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

## **VIII. Academic Integrity Violations**

Students who violate University standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the University. Since dishonesty in any form harms the individual, other students and the University, academic integrity policies will be strictly enforced.

## **IX. Disruptive and Threatening Behavior**

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu/> or to the *Department of Public Safety* <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.